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ABSTRACT

Children's attention to four cartoons was observed in a laboratory session at the end of a two-year longitudinal study of home television viewing. Age (5 or 7), verbal ability (PPVT-R score) and home viewing history were examined as predictors of visual attention. There were no age differences, but PPVT-R scores were positively related to attention. Attention was positively related to a history of viewing informative programs for children and negatively related to a history of viewing adult programs. The results were interpreted as showing that children who live in families with heavy diets of general television programs learn habits of inattention because the television becomes a constant background to family life and because the children are frequently exposed to programming that is beyond their level of comprehension, particularly if their general verbal ability is relatively low. By contrast, children who view informative programs extensively learn habits of paying attention from a diet of programming that is tailored to their levels of comprehension. (Author)

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Cognitive Development and Home Environment as Predictors of Children's Attention to Television

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Abstract

Children's attention to four cartoons was observed in a laboratory session at the end of a two-year longitudinal study of home television viewing. Age (5 or 7), verbal ability (PPVT-R score) and home-viewing history were examined as predictors of visual attention. There were no age differences, but PPVT-R scores were positively related to attention. Attention was positively related to a history of viewing children's informative programs and negatively related to a history of viewing adult programs. The results were interpreted as showing that children who live in families with heavy diets of general television programs learn habits of inattention because the television becomes a constant background to family life and because they are frequently exposed to programming that is beyond their level of comprehension, particularly if their general verbal ability is relatively low. By contrast, children who view informative programs extensively learn habits of paying attention from a diet of programming that is tailored to their levels of comprehension.

Cognitive Development and Home Environment as Predictors of Children's Attention to Television

The purpose of the study was to determine the effects of age, cognitive developmental level, television viewing history, and family variables on children's attention to television programs. Two types of developmental changes in attention to programming have been proposed (Huston & Wright, 1983). In the first proposal, children's responsiveness to the perceptually salient forms of television, such as high action, sound effects, and visual special effects is expected to decline with development, and as children become habituated to the perceptual qualities of television, their attention is expected to be increasingly guided by the informative form and content of the program.

The second proposal (Anderson & Lorch, 1983) is that perceived program comprehensibility is a major determinant of attention. As children become more cognitively and linguistically sophisticated, they are able to understand an increasing amount of program content. Hence, attention is expected to increase with age and cognitive development during the early years.

Developmental changes affecting attention to television were expected to be a function of experience with television as well as age and cognitive developmental level. Children with histories of heavy viewing, particularly watching animation and other programs containing high rates of formal features were expected to be farther along the developmental continuum of habituation to salient forms than light viewers. The opposite prediction can be made on the basis of program comprehensibility. Children with histories of viewing content similar

to that shown in the laboratory task might understand the content better and therefore be more attentive than children who are less familiar with the content (Collins, 1983).

Previous studies have shown that attention to television does increase with age, at least until early elementary school (Anderson & Field, 1984; Wright, Huston, Ross, Calvert, Rolandelli, Weeks, Raessi, & Potts, 1984). However, there is little information about the relation of attention to environmental mediators. Research investigating home viewing has shown that 1) parental regulation of television is instrumental in reducing the amount of viewing by the child (Cordez-Bolz, 1980; Singer & Singer, 1981), 2) older members of a family hold the most power in choosing programs to be viewed (Lull, 1978), and 3) parental viewing patterns are a potent indicator of how much time a child spends viewing (Roberts, cited in McLeod, Fitzpatrick, Glynn, & Fallis, 1982).

The present study surveyed parental practices and attitudes toward television viewing. In keeping with previous findings, it was hypothesized that parental TV regulation and negative attitudes toward television would reduce the amount of viewing by the child, and thus indirectly affect attention to television in the lab.

Method

In the present study, children's attention to animated programs was observed at the end of a two-year longitudinal investigation of home television viewing. The sample consisted of 203 5- and 7- year olds who participated in a series of individual assessments. They were subdivided into two groups. Group A (N=111) participated in a 20-minute television viewing session in which they watched four

cartoons with simple plots and varying levels of action and violence. They viewed alone in a small room where toys and drawing materials were available as distractors. Visual orientation to the screen was coded continuously by an observer behind a one-way mirror. Attention was defined as the proportion of time the child looked at the screen. Group B (N=92) viewed two animated programs from Pinwheel lasting approximately 15 minutes. For purposes of another study, the sound track occasionally degraded; the child could restore clarity by pressing a lever. All other aspects of the procedure were identical across the two groups.

The Peabody Picture Vocabulary Test (PPVT-R) was also administered, and parents completed an interview and a questionnaire designed to obtain information about family demographic attributes, child characteristics, and parent attitudes about TV. The child characteristics examined in this study included their TV focus, social activities, and print use. The child's TV focus assessed the extent to which the child talked about TV and used TV content in play. In addition, parents were asked how much their children engaged in general social activities such as playing outdoors, playing quietly indoors, and playing with other children. Information was also obtained regarding children's use of print material- how often they used books, magazines, and newspapers and how often they looked at books alone.

Parent attitudes toward television were also assessed. Specifically, parents' positive or negative attitudes, TV encouragement, and TV regulation were assessed. A positive attitude reflected parents' views that television had a good influence on their children, whereas a negative attitude indicated parents' belief that

television was a bad influence on their children. TV encouragement examined whether parents supported viewing at certain times and/or encouraged viewing specific programs by the child or family. TV regulation measured how often parents set limits on the content or amount of time children viewed.

During the two years preceding the test session, parents filled out one-week television viewing diaries on five occasions, approximately six months apart. From these diaries, the child's frequency of exposure to four types of programs was computed: children's informative programs, other children's programs (primarily cartoons), adult informative programs, and other adult programs (e.g., situation comedies, soap operas).

Results and Conclusions

Visual attention to the four cartoons was highly consistent. The median pairwise correlations for Group A was r (53) = 0.65 for the younger age group and r (64) = 0.59 for the older group. The median pairwise correlations for Group B programs was r (49) = 0.46 for the younger age group and r (58) = 0.73 for the older group.[1]

Initial analyses showed no relation of cohort or parent demographic attributes to attention.

Predictors of attention were tested by blockwise multiple regressions. Gender was entered first; the second block contained the parent variables (e.g., TV encouragement and TV regulation); the third block contained the child variables (e.g., print use and social activities); and the final block contained the four viewing categories. After each block, stepwise selection occurred. The results appear in Tables 1 and 2.

On the whole, the analyses of Group B's attention to Pinwheel animated programs replicated the patterns found for "typical" cartoons.

Overall, boys were more attentive than girls. Sex differences were not predicted, but are consistent with a number of other findings in earlier studies (e.g., Wright, et al., 1984).

Peabody scores were positively associated with attention for both groups. The positive association of PPVT scores with attention is consistent with the prediction that attention would increase with the child's ability to understand program form and content, but the absence of age differences raises questions about whether the result is a function of developmental change. All other child variables (viz., social activities, TV focus, and print use) were negatively related to attention; however, they were not significant predictors.

Parent measures of attitudes and practices revealed that parents of children who are most attentive to television had negative attitudes about TV and did not encourage television viewing or regulate it. This finding may indicate that the most attentive children are from homes in which television is not a focal activity-- an environment in which there is little viewing by the parents or child. Because parents do not encourage the use of television, and children do not watch in excess, there is no need for regulation.

Home viewing during the second year (not the first year) was related to attention. Viewing child other (e.g., cartoons) and adult programs in the home were negatively related to attention for both groups. Attention in the lab was significantly and positively related to viewing child informative programs for Group A and negatively related (although not significant) to viewing child

informative programs for Group B. These patterns do not fit either set of predictions regarding the effects of home viewing; both theories proposed earlier would predict that cartoon viewing experience would be most important and that child informative viewing would be second in importance.

One alternative explanation might be a more general deprivation-satiation hypothesis. Perhaps children who are exposed to large amounts of television at home are relatively satiated on television in general, and conversely, children with little television experience may be relatively deprived. This hypothesis would lead to the prediction that adult other programming should be the best predictor of attention because it accounted for 49% of the total amount of viewing time. Adult informative viewing, by contrast, accounted for 11%; child informative accounted for 14%; and child other accounted for 26%.

These results seem best explained by expanding the focus of explanation beyond the child's cognitive processing level to attitudes and viewing habits learned in the family. Inattentive children had relatively low vocabulary scores and a history of "watching" a lot of adult television programming and relatively little child informative programming. In families where children are exposed to heavy doses of adult entertainment programs, the television is on many hours a day and may become background noise to much of family life; that is, family members model inattention. In addition, adult programming is often well beyond young children's comprehension abilities, so that children are probably often inattentive to it even when adults are attentive. The result may be a habit of low attention or mental

effort in processing television that generalizes even to programming that is well within the child's ability to process. That habit may be most pronounced for children with relatively low verbal skills.

By contrast, when children watch child informative programs, such as Sesame Street, parents may encourage attention to the content, and the content is optimally designed to be comprehensible to the young child (Rice, 1984). Children who spend relatively more time viewing child informative shows (and relatively less time viewing adult programs) may develop habits of greater attention and mental effort that generalize and are enhanced by high verbal ability.

In conclusion, these findings imply that attention to television, even to simplistic cartoons, is an indicator of more general attentional patterns, with implications for information processing styles in general. They also suggest that the family television viewing environment is an important crucible for learning attitudes and cognitive skills during the early years.

Footnote

[1] Sample sizes for pairwise correlations were discrepant because they included subjects who had attention data but lacked home viewing data.

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Table 1. Predictors of Visual Attention to "Typical" Cartoons

Variables	Beta	p	Increment in R^2
Encourage TV	-.22	.02	.07
PPVT	.20	.03	.04
Child Informative	.21	.04	.02
Adult Informative	-.19	.07	.02

Overall R^2 .15

Overall F (4,106) = 4.76, p .001

Table 2. Predictors of Visual Attention to "Pinwheel" Cartoons

Variables	Beta	p	Increment in R^2
Gender	-.25	.01	.05
Adult Informative	-.29	.004	.08
PPVT	.19	.05	.04
TV Regulation	-.16	.09	.02

Overall R^2 .19

Overall F (4,87) = 5.16, p .01